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10/588,543

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Tsuyoshi Isomura

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EXAMINER

DUBASKY, GIGIL

ART UNIT

PAPER NUMBER

2421

NOTIFICATION DATE

DELIVERY MODE

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ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/588,543	Applicant(s) ISOMURA ET AL.	
	Examiner GIGI L. DUBASKY	Art Unit 2421	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 April 2011.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15,21,22 and 24-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15,21,22 and 24-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Claims 1-14, 16-20 and 23 have been cancelled.

Claim 30 has been newly added.

Claims 15, 21-22 and 24-30 are pending.

1. Applicant's arguments in the Remarks filed on 04/29/2011 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 15, 21-22, 24 and 26-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito Noburo et al (JP 2002-232809 A) (herein Noburo) of the record in view of Boyce et al (US 2006/0126733) of the record and further in view of Iwata et al (US 2002/0071056).

Regarding claim 15, Noburo discloses a broadcast receiving apparatus (Figures 1-4), comprising:

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a receiver (demodulator 1 as “a receiver”) which receives a first TV broadcast signal and a second TV broadcast (¶ [0006] and ¶ [0014] for the demodulator 1 receives the digital TV broadcast including a first (S1) and a second (S2) image stream data);

decoders (decoders 21 and 22) which decode the first TV broadcast signal and the second TV broadcast signal (¶ [0006] and ¶ [0014] for decoding the first (S1) and the second (S2) image stream data to output picture signal I1 and picture signal I2);

a detector (sensing device 3 as “a detector”) which detects a decoding error part of the first TV broadcast signal decoded by said decoder with respect to each frame, and generates a decoding error information, with respect to each frame, including error information and a presentation time stamp attached to the frame (¶ [0006], ¶ [0010]-[0011] and ¶ [0015] for detecting position or pixel unit of an error among the picture signal I1 of the image stream data S1 bundled in coded packets at a transmitter and decoded by a receiver’s decoder in MPEG-2 format in which it is known that there are two attached timestamps such as decoding time stamp (DTS) and presentation time stamp (PTS), and outputting an error position information or pixel information; and ¶ [0023] for enabling to perform error amendment of the picture signal per pixel, per two or more pixels block unit, per a field unit or per frame. One ordinary skilled in the art would recognize that Noburo discloses detecting a decoding error pixel of the image stream data S1 decoded by a decoder with respect to a frame and generating a decoding error information with respect to each frame with its attached presentation time stamp); and

a synthesizer (synthesizer unit 5) which specifies the decoding error part of the first TV

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broadcast signal based on the error information in the decoding error information generated by said detector, specifies the frame of the second TV broadcast signal of which the time is the same as that of the decoding error part based on the presentation time stamp, and generates a composite signal obtained by replacing the decoding error part of the first TV broadcast signal with a corresponding part in the specified frame of the second TV broadcast signal decoded by said decoder (¶ [0006], ¶ [0010]-[0011], ¶ [0015]-[0016] and ¶ [0019] for extracting from the picture signal I2 (frame I2) of the image stream data S2 decoded by a decoder in MPEG-2 format, in which as known the PTS is attached, an amendment picture Ia which corresponds to the detected position or pixel unit of error information contained in the picture signal I1 (frame I1) of the image stream data S1 to amend error pixel of the picture signal I1 (frame I1) and forming a synthetic picture signal Ic by compounding the amendment picture Ia and the picture signal I1 including only normal parts (or without detected error part). In other words, Noburo's synthesizer unit 5 coupled to an extracting apparatus 4 enables to specify the decoding error part of image stream data S1 based on the error pixel information in the decoding error information outputted by sensing device 3, to specify the picture signal I2 (frame I2) of the image stream data S2 attached with a PTS corresponding to the picture signal I1 (frame I1) of the decoding error part of image stream data S1 also attached with a PTS (which is obvious for one ordinary skill in the art to recognize the frame I2 corresponding to frame I1 of detected decoding error is specified based on the PTS) to extract an amendment picture Ia from the frame I2, and generates a composite signal obtained by replacing the decoding error part of picture signal I1 (frame I1) of

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image stream data S1 with a corresponding part in the specified picture signal I2 (frame I2) of the image stream data decoded by a decoder).

Noburo discloses two decoders 21 and 22 for decoding image stream data S1 and S2 in some embodiments (1-3) and also discloses only one decoder for decoding the synthetic image stream data in embodiment 4 (Figure 4 and ¶ [0022]), but fails to disclose a timesharing unit and a decoder to timeshared decode the first TV broadcast signal and the second TV broadcast signal. Noburo discloses the synthesizer unit 5, if there is no detected error in the picture signal I1, outputs the picture signal I1 of image stream data S1, if there is an error detected in picture signal I1, reads out the pixel of picture signal I2 of image stream data S2 corresponding to decoding error part of picture signal I1 to amend the detected error and outputs the amendment picture signal directly to a display device 9 (Figure 1 of first embodiment and ¶ [0016]) or to an intermediate device such as a filter 6 (Figure 2 of second embodiment and ¶ [0017]), a change machine 8 (Figure 3 of third embodiment and ¶ [0018]) or a decoder 20 (Figure 4 of four embodiment and ¶ [0022]), but does not explicitly disclose the intermediate device include a storage device to store corresponding outputs of the synthesizer unit 5 and does not disclose a second storage device which stores the second TV broadcast signal decoded by a decoder.

Boyce discloses a robust mode staggercasting communication system (title) which comprises a receiver (Figure 6) to receive a time domain multiplexed signal representing the same content and including two encoded signals in two different modes (i.e., normal mode and robust mode) (¶ [0031]) with one having higher quality

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than the other (§ [0059] and § [0087]). Boyce discloses the receiver includes element 250" for storing the robust mode signal decoded by decoder 240" in Figure 6.

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Noburo's receiver to include a second storage devices to store the picture signal I2 of the image stream data S2 or the robust mode signal (as "the second TV broadcast signal") decoded by a decoder as taught by Boyce, so to enable to quickly extract stored redundant signal which is already decoded to replace the detected error part of the corresponding signal in the benefit of increasing response time.

Iwata discloses a television receiver for decoding a multi-channel image data coded in MPEG-2 transport stream with temporal information, i.e., PCR, STC, DTS, PTS, etc. (§ [0050] and § [0055]-[0056]). The receiver comprises a decoder 19 and a decoder controller 21 (in Figures 6-7) which allows the decoder 19 to process different channels to decode their image data on a timesharing basis (§ [0061] and § [0071]). The receiver also comprises a decode memory 20 to store already decoded signals and to be sent through the memory I/F 45 (Figure 5) to a display device (§ [0058]-[0059]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the combined system of Noburo and Boyce with one decoder having a timesharing module to alternatively decode multi-channel image data in timeshared manner as taught by Iwata so to reduce cost of multiple decoders in a television receiver and to modify the combined system, Noburo per se, with a storage device as one of intermediate device or integrated into one of

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intermediate device between synthesizer unit 5 and display device 9 to store decoded signals before sending out to a display device as taught by Iwata so to support time shifted functions such as pause, forward, backward... in a benefits of reducing manufacturing cost of multiple decoders for the television receiver and improving user's viewing experience.

Regarding claim 21, Noburo in view of Boyce and further in view of Iwata discloses the apparatus as discussed in the rejection of claim 15. The combined system further discloses the decoder decodes the first TV broadcast signal with use of the composite signal stored in said first storage device if said detector has detected the decoding error part of the first TV broadcast signal (taught by Noburo; ¶ [0022] for decoding the TV broadcast signal using the synthetic image stream data Sc formed by image stream data S1 and amendment image data signal Sa if an error part of the image stream data S1 has been detected by the sensing device 3; Iwata discloses a decode memory 19 as "first storage device").

Regarding claim 22, Noburo in view of Boyce and further in view of Iwata discloses the apparatus as discussed in the rejection of claim 15. The combined system further discloses the decoder and said detector constitute a decoding and detecting unit which decodes the first TV broadcast signal corresponding to the second TV broadcast signal after decoding the second TV broadcast signal (in the combined system, Noburo's sensing device 3 as "detecting unit" and Iwata's decoder 19 being capable of

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alternatively decoding the first and the second TV broadcast signals or channels), and detects the decoding error part of the first TV broadcast signal during decoding of the first TV broadcast signal to output a detection result to said synthesizer (Noburo's sensing device 3 detects decoding error part of picture signal I1 of image stream data S1 during decoding the image stream data and output error position information to extracting apparatus 4 coupled to synthesizer unit 5).

Regarding claim 24, Noburo in view Boyce and further in view of Iwata discloses the apparatus as discussed in the rejection of claim 15. The combined system further discloses the second TV broadcast signal is a broadcast signal for use in broadcasting under rainfall for the first TV broadcast signal (taught by Noburo; ¶ [0011] and also taught by Boyce; ¶ [0045]).

Regarding claims 26-27, all limitations of claims 26-27 are analyzed and rejected corresponding to the functionalities of a broadcast receiving apparatus in claim 15.

Regarding claim 28, all limitation of claims 28 are analyzed and rejected on the same ground as claim 15.

Regarding claim 29, Noburo in view Boyce and further in view of Iwata discloses the apparatus as discussed in the rejection of claim 15. The combined system further discloses when a resolution of the first TV broadcast signal decoded by said decoder is

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different from a resolution of the second TV broadcast signal decoded by said decoder (taught by Noburo; ¶ [0008] for the first picture signal I1 reproduced from the S1 decoded by a decoder is characterized by being higher resolution than the second picture signal I2 reproduced from the S2 decoded by a decoder), the synthesizer implements data expansion or contraction depending on a resolution ratio of the resolution of the first TV broadcast signal and the resolution of the second TV broadcast signal (taught by Boyce; ¶ [0059]-[0062] for when a spatial resolution, frame rate, etc. of the first TV broadcast signal decoded by said first decoder is different from those of the second TV broadcast signal decoded by said second decoder, the selector (as the "synthesizer") performs the switching from decoding a normal mode video packet stream to a robust mode packet stream and vice versa is performed by gradually changing the image characteristics (i.e., resolution, frame rate, etc.) of the resulting video signal between two modes which means that Boyce discloses the synthesizer implements data expansion or contraction depending on a resolution ratio of the resolution of the first TV broadcast signal and the resolution of the second TV broadcast signal when the resolution of two signals is different).

Regarding claim 30, Noburo in view Boyce and further in view of Iwata discloses the apparatus as discussed in the rejection of claim 15. The combined system further discloses the first TV broadcast signal and the second TV broadcast signal are each a digital TV broadcast signal (taught by Noburo; ¶ [0001]), and the first TV broadcast signal has a content identical to a content of the second TV broadcast signal and

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provides a video of a quality higher than a quality of the second TV broadcast signal (see Noburo's claim 4 and ¶ [0008] for the first picture signal I1 reproduced from the S1 is characterized by being higher resolution than the second picture signal I2 reproduced from the S2; also taught by Boyce; ¶ [0047] and ¶ [0050]).

4. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ito Noburo et al (JP 2002-232809 A) (herein Noburo) of the record in view of Boyce et al (US 2006/0126733) of the record, Iwata et al (US 2002/0071056) and further in view of Shikakura et al (US 6108379) of the record.

Regarding claim 25, Noburo in view of Boyce and further in view of Iwata discloses the apparatus as discussed in the rejection of claim 15. The combined system further discloses the first TV broadcast signal and the second TV broadcast signal are each a digital TV broadcast signal (taught by Noburo; ¶ [0001]), and the first TV broadcast signal has a content identical to a content of the second TV broadcast signal (see Noburo's claim 4 and also taught by Boyce; ¶ [0047] and ¶ [0050]), and is a signal modulated by a modulation system (taught by Noburo; ¶ [0002], also taught by Boyce, see modulator 150 in Figure 1).

The combined system does not explicitly disclose the first broadcast signal in modulation system has a viewable receiving C/N ratio higher than a viewable receiving C/N ratio of a modulation system applied to the second broadcast signal.

Shikakura discloses the first broadcast signal in modulation system has a viewable receiving C/N ratio higher than a viewable receiving C/N ratio of a modulation

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system applied to the second broadcast signal (see curve B and curve C in Figure 8; Col 3 lines 23-51, Col 4 lines 55-67, Col 6 lines 9-16 and Col 7 lines 26-39).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the combined system of Noburo, Boyce and Iwata with the teaching of Shikakura about modulating the first signal in a viewable receiving C/N ratio higher than the second signal, so to provide a more robust system under the rainfall which not only encodes the first and the second signal of the same content in different resolution but also modulates them in different C/N ratio in order to enhance user viewing experience.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GIGI L. DUBASKY whose telephone number is (571)270-5686. The examiner can normally be reached on Monday through Thursday from 8:00 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, KRISTINE L. KINCAID can be reached on 571-272-4063. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/KRISTINE KINCAID/

Supervisory Patent Examiner, Art Unit 2421